BRIEF REPORT ON THE LEGAL ASPECTS OF SPACE

by

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Internal Working Paper No. 23

January 1965

This research was supported in part by the National Aeronautics and Space Administration under General Grant #NSG-243-62 under the University of California.

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INTRODUCTION

This report was originally prepared to acquaint those working in the Social Science Project of the space effort at Berkeley with the basic legal aspects of space. It originally took the form of a seminar session. Out of this exchange of views and upon further reflection it became apparent that while the social, political and legal problems inherent in a space environment were the concern of many people, there exists no consensus on the present state of research in this important area. It is not known what efforts are presently being made in the several behavioral sciences and in law to meet the challenges presented by the proposed establishment of scientific colonies in space.

The present report begins with a brief summary of existing space law and of prevalent political and legal theories concerning space exploration and colonization. These theories will help shape not only the attitudes likely to be taken by earthside controlling political interests but also by scientific personnel engaging in the actual administration of space science objectives. From this, it is but a step to raise the problem of the behavioral aspects of space science administration in the political and legal setting of an actual space society operating under space constraints.

It is apparent that if space presents unique problems of <u>life</u> support for scientific personnel engaged in space activities, the same must obviously be said for support of the space <u>society</u> as a social, political and legal entity. This report therefore closes with the suggestion that organized effort be made to ascertain the state of the research in social, political and legal problems incident to the space

enterprise. Only in this way can present lines of research be disclosed and future possibilities be rationally marshalled. It is also suggested that the stringent constraints imposed upon the space colony by unnatural ecological conditions of space can only exacerbate the problems which such colonies will face in attempting to govern themselves. Finally, it seems apparent that any proposed solution of the life support problem that ignores the behavioral and legal situations that the space society is apt to encounter is likely to be wholly abstract and unrealistic.

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I. The Law

1. Hard Law

a. The National Aeronautics and Space Act of 1958 (as amended). [See Staff Report for Senate Committee on Aeronautics and Space Sciences, 87th Congress, 2nd Session, Government Printing Office.]

§ 102. a) Policy: "...activities in space should be devoted to peaceful purposes for the benefit of all mankind."

b) Aeronautical and space activities to be directed by NASA except for military activities (DoD).

c) Objectives stated very broadly for peaceful purposes, etc.

(1) to (3).

(4) <u>The establishment of long-range studies of the potential benefits from, the opportunities for, and the problems involved in the utilization of aeronautical and space activities for peaceful and scientific purposes</u>.

§ 201. National Aeronautics and Space Council established in the Executive Office of the President.

Council:

Vice President of the United States - Chairman of Council
Secretary of State
Secretary of Defense
Administrator, NASA
Chairman, Atomic Energy Commission

Function: to advise the President on aeronautical and space matters.

§ 202. National Aeronautics and Space Administration. Administrator to be chosen from civilian life; responsible to President.

§ 203. Functions.

a) (1) Plan, direct, and conduct aeronautical and space activities.

(2) Arrange for participation by the scientific community in planning scientific measurements and observations in aeronautics and space.

(3) Provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof.

b) Activities: make rules and regulations governing operations of the Administration.

§ 204. Civilian-Military Liaison Committee established.

§ 205. NASA to promote International Co-operation.

b. The rules and regulations adopted by the Administration have the force and effects of law (S203 b) (1)). These are contained in the first instance in the Federal Register. The Agency itself promulgates its rules and regulations and publishes them to interested and affected parties.

c. Treaties and International Agreement. [See Senate Document No. 26, p. 779 et req. (cited below)].

2. Soft Law.

a. Public Bodies. [See "Legal Problems of Space Exploration," Senate Document No. 26, 87th Congress, 1st Session (1961)] In addition to the Constitution and Statutes of the United States and the administrative law made by NASA, there are various public bodies whose pronouncements

or activities form a body of "soft law" on the subject of aeronautics and space. Most prominent is the United Nations. The above Senate Document is a mine of information on the legal problems of Space up to the time of its publication in 1961. For an account of the activities of the U.N., COSPAR, IAF, see above Document No. 26, pp. XII to XXII.

b. Text writers.

In the field of aeronautical and space law, the basic metaphors are those operating in the field of international law and relations. International law has primarily been developed by law writers, molding actual international governmental practice into a more or less coherent and authoritative body of laws. Unlike municipal law, which develops primarily out of judicial decision and legislative enactment, international law's primary source is executive action, most of it of an ad hoc character. Hence the authoritative writers on international law have always exercised a creative role in the development of international law out of the variegated practices of international executive agreement and practice. International law has one primary characteristic that distinguishes it from other bodies of law. Its "subjects" are autonomous politically and cannot be coerced by the body of law that purports to govern them. This means that international law depends for its efficacy upon voluntary compliance by its subjects. This in turn means that the subject nations often devote much time and attention to the limits of the legislation (treaties, agreements) by which they propose to be bound. Characteristically, therefore, there is often much theoretical and academic examination of the issues whenever the likelihood of a significant extension of international law is in the offing.

Discussion respecting the legal character of space is an illustration of this constantly recurring condition. [For an exhaustive bibliography on this subject up to 1961, see Senate Document No. 26, 87th Congress, 1st Session. This comprises reprints of a large collection of articles by non-Communist and by Communist authors on the subject of space law.] The fundamental political assumption of this collection which appeared in March 1961, was that only the United States and the Soviet Union would raise problems of space law because only these two powers were technically equipped and presently willing to act. The universal assumption was made, however, that the whole planet would be effected by the action of these powers and that hence, space law would have to be planetary law in some sense or other.

The basic metaphor governing thought in the area of space law is whether and to what extend space is to be regarded as an analogue to the airspace above the surface of the earth or to the oceans. Airspace, as was quickly established at the beginning of World War I, is regarded as an integral part of the political domain of the subjacent earth. Passage through the airspace is everywhere regarded as equivalent to entry upon earthspace. The oceans, on the other hand, have traditional been regarded as free to peaceful passage by all inhabitants of the globe.

All authorities, legal and doctrinal, who have spoken on the subject assert that space should be open to free exploration for the peaceful purposes of the whole of mankind. So far there has been no retraction

of that general sentiment. On the other hand there has been no authoritative determination of where space begins and there has been no definitive agreement on what purposes are peaceful in the use of space. So far there has been only the U-2 incidents to raise the first question. It was settled by the virtual agreement of the parties concerned that such airborne vehicles are to be governed by air law rather than space law. The problem will become more acute as surveillance planes approach more nearly the capabilities of space vehicles. It may also erupt at any time in the form of diverse opinion on the nature of spy or surveillance satellites.

Informed doctrinal opinion on what should be done concerning a body of law governing space takes these forms.

1. Codification.

   Some writers take the view that detailed codes of space law should be drawn up to provide a full-scale system of regulations governing the international use of space. This is an example of the system of legal thought known as Analytical Jurisprudence.

2. Proclamation.

   Other writers believe that not detailed regulations, but the expression of general principles of high ethical purport should be formulated and adopted by the community of nations, preferably under U. N. self-binding legislation. This is an expression of Natural Law Jurisprudence. It is not averse to codification.

3. Ad Hoc Adjustment.

   The third position is advanced by three American writers who

believe that the present development is very auspicious and that any attempt to formulate either rules or principles for authoritative governing of space would create controversy and destroy the present amiable ad hoc complicated system of voluntary adjustments. This is an outgrowth of American pragmatic sociological jurisprudence.

Two major writings expounding the above viewpoints and containing a wealhh of information on other problems of space law have recently appeared. These are Haley, Space Law and Government (1964) and McDougal, Lasswell and Vlasic, Law and Public Order in Space (1963).

Haley, represents the "natural law" point of view. He tries to extend the law of the seas, rather than law of air, to space. He calls for a line or area of demarcation, accepts facts of life on airspace, and relies heavily on present Soviet and U. S. good will. Haley appeals to the better instincts of mankind to make space "res communis", and under the aegis of the doctrine of natural law to keep space free and open to all mankind. There is a brief history of early space effort. Haley is optimistic about political pronouncements regarding space. He strongly objects to sovereignty claims on space; approves of space vehicle regulations on an international basis; and above all wants U. N. action now. Haley's book contains a simplified and very useful account of present space regulations and organizations. He raises problems of Metalaw: other worlds and other beings.

Mc Dougal et al. insist upon the value of an informal wait-and-see policy. The developments of the first few years of the space age appear to indicate that participants will for some time continue to interact in organized situations and seek accommodations largely through mutual tolerance and reciprocal restraint, rather than in formal institutional structures.

These men expect the condition of political crisis to continue as part of the human condition. As we push out into space they predict that we will carry the earthly arena with us. Their approach is essentially based on a political analysis of power - an orientation long associated with Lasswell as a student of power politics. Their prescription for political action is to guide political power into socially desirable channels and to harness it for social ends. They assume the following analysis of human nature based on realpolitik.

Expectations of Crisis.

As we push out into space wewill carry the earthly political arena with us (Is this so?).

Politics is essentially based on the nature of human species.

a. Man appeared on earth in tiny social units dominated by fear and hostility to other species, especially to proto-human rivals.

b. Control of contiguous space is essential to any living form.

c. Trends toward segregation rather than dispersion are characteristic of human groups. Military strategy naturally seeks to encircle compact areas, to interpenetrate, and to include.

Contiguity is paramount consideration.

Astropolitics may expect to witness attempts to control in all directions from whatever surface is at command.

Despite universal declarations of purpose and universal transmissibility "all innovations are parochially introduced" (see Law and Public Order in Space, Myres S. McDougal, et al., Yale University Press, 1964, p. 47). This dominates space politics. Take off point is restricted in space and time. This results in a dialectical clash of interests. Hence, diffusion of innovations follow political-military routes and zones.

McDougal et al base their analysis of the legal and political aspects of space on their familiar base values model. Their values are:

power, wealth, enlightenment, respect, skill, well-being, and health, rectitude and loyalties.

All political and legal problems in space are then oriented around this model.

Space Colonization.

Text writers are greatly exercised about the problems of space colonization. They are divided between those who are optimistic about a change in the nature of political man as evidenced by the conduct of scientists and other pioneers in the Antarctic and by their activities connected with the IGY; and those who believe pessimistically that national conflicts evident since the dawn of history in human emigrations will simply continue, subject to the constraints imposed

by space upon terrestrial beings. Colonization has always been a major factor in the spread of national sovereignty. The optimists point out that colonization, while always decisive, has never been completely definitive in determining the question of exclusive sovereignty over new territory. Colonists often abandon their enterprises. If the terrain is too rough - as for example Newfoundland for the early Vikings - they may give up. Moreover, many attempts have been made to colonize Antarctica, but the continent is still "open" to a certain extent. The pessimists remain skeptical. The optimists would like all space colonization to be governed by the U. N. Others believe that it is inevitable that national interests will intrude. They point to the Communication Satellite Act of 1962 as an example. [See Conference on the Law of Space and of Satellite Communication, NASA SP-44. (Scientific and Technical Division 1964.)]

The statute sets up a private corporation for profit to own and manage communication satellites. The act makes no mention of space as "open to all mankind" nor any other such gesture. The communication carriers, notably AT & T, regard it as just another communication facility in their network of privately owned communication systems, operated for profit.

The major concern of the carriers and indeed of the government is the possibility of a violation of the American anti-trust statutes. [See Kirkpatrick, Antitrust in Orbit, 33, George Washington Law

Review (October 1964) p. 89. The overwhelming influence of AT and T in the industry is maintained in the power structure of the corporation. The corporation negotiates with foreign interests and their governments on an essentially private basis.

The ideological issues separating the text writers were aired in the above-mentioned Conference on the Law of Space and of Satellite Communication. McDougal once more stated the pragmatic position of research attempts to constraint overriding national ambitions rather than comprehensive codes for the governance of space. He outlines his position as follows:

1. Comprehensive survey of Earth-space social processes which give rise to claims to authoritative decision.
2. Economic categorization of probable types of particular claims to authority.
3. Realistic appraisal of processes of authoritative decision that general community may be expected to maintain for resolution of controversies.

Processes of Authoritative Decision:

Elites who have divided up the earth or the elites who will divide up space. Earth allocations are made on basis of international law. The same situation will be applied to space.

Nation--states will continue to expand their present spheres of influence on basis of customary law.

Organized structures:

United Nations, International Court of Justice are specialized agencies.

Authority is the basis:

The sense of community expectations about the lawfulness of decisions.

Familiar strategies:

Diplomatic, ideological, economic, military

Modalities:

Explicit agreement

Implicit communication of customary behavior.

Favors extension of "ocean law" analogue.

Abram Chayes leans more optimistically toward the U. N. He cites U. N. Resolution 1721:

1. International law and Charter of United Nations apply to space.
2. Space is not subject to appropriation by nations. This is directly contrary to customary law and is unprecedented in the history of exploration.

He asks whether U. S. will accept this provision? We do regard U. N. enactments as law. Will we carry through?

The U. N. has a registry of space launches. Do we follow it?

Russia's position is that the use of outer space for collection of intelligence is not peaceful.

We claim that any use of outer space is peaceful if it is not intended for agression. This brings up the troublesom question of "intentions".

Russia takes the view that space must be used only by nation states.

The U.S. insists that private enterprise must be allowed scope as in the communication satellite field.

II. Research Possibilities

McDougal et al's book is a rich mine of research problems on the social psychological aspects of space. Almost every page of the book raises issues that are ripe for psychological and sociological investigation. For example, they speak of the recent status changes in space specialists in the U. S. and the U.S.S.R.; of the changing elites in science politics; of the enhanced status of military elites; of the increased importance of intelligence specialists; of the importance of space colonization. The last subject alone is myriad-headed. The space community must be based on fundamental identities. Its members should be composed of those whose political ideals are shared. They should belong to the same class, the same interest groups and share common loyalties. All these assumptions which I should say are not only doubtful but even dangerous, are likely to be unconsciously accepted by those who select out and endow the members of the space community with their missions. Such assumptions need serious investigation.

The common notion that scientists share a broader world outlook than politicians is another area of investigation. Such outlooks may not hold up in the face of political necessity. Scientists may easily panic when outside the area of their expertise.

The text writers referred to above are concerned with the political behavior of space colonizers, the impact of their activities on national policy and international rivalries; the conflict situations they are apt to encounter, and the interests which are likely to try to use them. The method which these writers employ in their investigations is the time-honored method for

turning up new problem areas. In very general terms this method has two forms: (1) a study of the history of traditional problems and an extrapolation of them into the future in the new environment; or (2) an appraisal of historical failures and a general resolve not to let them repeat themselves. The first form assumes that human nature changes very little if at all. Wisdom dictates that basic conflicts will emerge in the new environment and that only incremental success in resolving them is to be expected. The tools for handling such problems are in the main the traditional ones, although new facilities should be used to the hilt as a supplement to older methods. This view is pragmatic, restrained, and only very cautiously optimistic. The second form believes that the new problem somehow carries with it a new opportunity to succeed at last. It believes that moral enthusiasm accomplishes wonders. Neither form envisages the use of radically new experimental techniques in the solution of age-old political and social constraint situations. Political and legal investigators in the field of international relations have never had the luxury of constructing artificial societies of an experimental character for the purpose of learning how political and legal adjustments are made under controlled conditions. The Utopians try to imagine ideal political states, but their work serves inspriational rather than investigative aims. However, it seems important to study not necessarily ideal but practicable political, legal and social environments in an attempt to anticipate how small, closed societies with limited objectives and carefully selected personnel are apt to govern themselves.

Simulated Societies Pursuing Scientific Objectives in Closed Environments.

Research in the social sciences aspect of space science has for its objective the social behavior of the various "societies" that in any way affect the effort to explore and colonize space. Theoretically, this means the vast continuum that extends from the social psychology of the single astronaut up to and including that of humanity itself. Practically, however, the societies that are amendable to such research are much more limited. The space community itself is fairly well defined, by the virtue of its dedication to the single objective of investigating space. It is not too difficult to discern the subgroups within this community since they too are differentiated on the basis of function. Moreover, within the research community certain groups demand priority of consideration largely on the basis of need. It is the function of those charged with the responsibility of investigating the problems of social psychology in space activity to select out the groups most urgently needing this special type of attention.

For example, it is a moral obligation of high priority to look to the well-being of those who are sent beyond the confines of mother earth to explore space. It might be said that this priority is second only to the moral obligation to advance science and human welfare by pushing out the boundaries of the human habitat beyond the confines of our planet. Hence, the physical, mental and moral risks to which our explorers are put must be minimized to the fullest extent that forethought can provide. But what we now know is not enough. Hence, the necessity for research which calls for a high order of imagination in attempting to forecast difficulties and to make provision to surmount them. In the area of social psychology, itself only an embryonic

science, these difficulties are of massive proportions. Indeed, there is nothing that the social investigator is likely to discover about the behavior of small groups dedicated to a single overriding objective that is likely to prove more efficacious than good will, common sense, and high morale. It is only when these native endowments are put to too great a strain that one must substitute planned action for spontaneous and spirited adventure.

Experience has shown that in the present state of human enthusiasm for space exploration, a single astronaut or a small group, venturing not far from earth, on a mission strictly limited as to time and objective, with provision for forced landing if necessary, can rely on ground-based associates for a high level of cooperative support. None of the disintegrating effects of group action over time have yet emerged. But it is certainly too much to expect that this situation will remain unchanged. It would have been well if the activity of this small society had been studied as a social psychological group, as an administrative community, as a legal society.

The evidence indicates that extraordinary efforts were taken to assure the astronaut of complete morale support by his fellows, by the services, the government and the nation. I do not know the details of this "community" effort. Apparently, all problems of hierarchy, command, interpersonal friction, status, role, discretion, administrative procedure, and legality were worked out either in advance or on the spot in an atmosphere of good will and under optimal circumstances. Social psychologically speaking, the astronaut was placed in the most favored position possible to be obtained.

He was in constant communication with his own close associates who were also personally friendly and anxious to help. A massive ground force was totally dedicated to the safe performance of his mission, or rather, to his safe re-entry and return. Following this paramount concern was concern for the physiological well-being of the astronaut, and much careful experimental work was done on the effects of space upon the health and morale of the prime participants. This work of course must go on. But when the character of the space effort changes and the mission becomes more complex and prolonged, we may expect "social psychology" to emerge from the condition of being swamped out by morale to a position of prime importance. Unfortunately, the problems of group action will obtrude sooner or later, and it would be wise to try to anticipate and guard against them.

Physiologically, the astronaut is a single human being. Socially, he is a member of a group even when he is alone in the capsule. His group is his ground based support, and no one knows better than he that during flight he is only a peculiarly exposed element in this complex. What is the social psychology of this community? How does it solve its problems of social friction and social waste? A vast military history and tradition supports the astronaut on the limited missions so far undertaken. He is subject to military discipline. He knows the conditions under which military organization directs support for a supremely important mission delegated to a single person or to a small group. But what will happen when the mission becomes extended in time, in personnel and in objective? The military analogue will hold but in radically different terms. Now the analogy is to a small party sent out without continued base contact or support. The

problems become those of colonization, about which we know little. The analogy to Antarctic exploration is worth something, but there again, a massive military suppott organization is ready to intervene in emergencies and there is always the possibility of emergency return.

There seem to be two different ways to design a mission that extends over a considerable period of time One is to design the mission to be as self-supporting as possible. The other is to enlarge home base support to the maximum. As a practical matter and historically, adventure begins with the self-sufficient mission, and expands to home base support if and when mission success warrants such expansion. Ideally, as much home base support as the mission can exact should be obtained. In the case of pioneering efforts, this still leaves a vast amount to the initiative and enterprise of the "adventurers".

Although one of these modes generally merges into the other, yet the planning and the type of support are vastly different for each. Certainly this is true social-psychologically. A self-sufficient group, however small, is an administrative and legal entity. Its social psychological problems increase with time. It must govern itself consciously, as the occasions for friction multiply and become exacerbated. If the society is administratively and legally autonomous, we have a vastly different situation from that which prevails if the exploring group is constantly under the surveillance and supervision of earthbound associates and superiors.

It is not too soon to attempt to set up "observation models" to try to isolate the small group organization problems of the space flight community.

This means a lot of empirical descriptive study. It could also mean an attempt to set up an observation model that could "study along with" the actual flight performances now taking place, to try out hypotheses and to determine what empirical models fit the data observed. No attempt at the outset should be made to impose constraints on the behavior of the space flight community unless this can be conveniently and cheerfully submitted to by the members of the community.

Along with this should go an effort to set up a small artificial society operating to perform an assigned mission under constraints of a simulated space flight. The problems the group faces should be those of a small group organization sort - the making of decisions of an administrative and legal nature.

The question of life support for space communities has received much attention. Yet it appears that even in the matter of biological systems, it was the conclusion of the reporter on the second Conference on Minimum Ecological Systems for Man, that "in view of the present status of research accomplishments and the immediate prospects for further study, that a discussion of the consequences of the normal gravitational force and the deprivation of physical activity should result in more questions than answers". (Science, 8 January 1965, p. 184.)

It is hard to imagine how ecological questions could even be meaningfully raised for a human population confined under space travel or space colonization conditions without corresponding attention to social-psychological and legal problems. For whether well or ill, the space community must

govern itself. Therefore, if as is apparent, there is need for study not only on how the human system can adjust to space conditions, but also on the question of how the system can re-adjust to earth conditions. It ought to be equally obvious that a human population which must expend much energy in the process of governing itself under "normal" earth conditions, might expect to have this expenditure of energy multiplied by an unknown factor under conditions of existence in a space environment.

It seems to me that there is a critical need for pooling the experience of several disciplines in an attempt to come to some idea of the state of research on the subject of social-psychological, political and legal problems in restricted environments confronting scientific personnel devoted to restricted missions under conditions of severe physical and emotional stress.

The question of conflict between scientific and military personnel under severe environmental constraints has recently been studied by Dr. Donald Strickland in a forthcoming working paper for the Social Sciences Project of the Space Sciences Laboratory at Berkeley. He reports that there is no empirical research on the long-range problems of interpersonal and intra-group conflicts among personnel confined in a small space and devoted to a mission under severe environmental conditions. Indeed, even if this rather restricted area by expanded greatly, there is still little empirical research on the group dynamics of such entities. There is much work on leadership problems and on perceptual distortion due to group pressure, but virtually nothing on the phenomenology of interpersonal conflict within

the group, as distinct from a) inter-group conflicts and, b) interpersonal conflicts without regard for the group setting and roles.

Socio-legal and political specialists might well join hands with ecologists, paychiatrists, and psychoanalysts, and others in the biological and medical fields in the interests of designing a model of a "viable society" that might have greater chance of success with space missions than one which is forced to ignore such learning and trust to the active goodwill and common sense of the personnel involved.